Lecture Module - Data Acquisition

ME3023 - Measurements in Mechanical Systems

Mechanical Engineering

Tennessee Technological University

Topic 1 - Analog to Digitial Conversion

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- DAQ and Computer Storage

- Types of Integers

- Integers vs. Floating Point Numbers

- Analog to Digital Conversion

DAQ and Computer Storage

A data acquisition system is the portion of a measurement system that quantifies and stores data. – Theory and Design of Mechanical Measurements
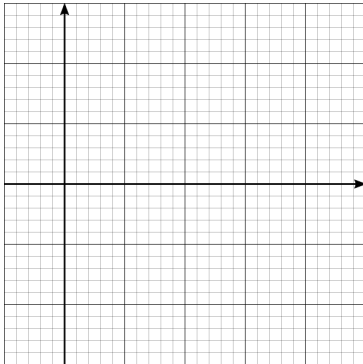

Image: T.Hill

Types of Integers

Binary	Decimal	Hexadecimal
0	0	0
1	1	1
10	2	2
11	3	3
100	4	4
	5	5
	6	6
	7	7
	8	8
	9	9
	10	A
	11	B

Binary	Decimal	Hexadecimal
	12	C
	13	D
	14	E
	15	F
	16	
	17	
	18	
	19	
	20	
	21	
	22	
	23	

some reference

Types of Integers

Binary	Decimal	Hex.
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Integers vs. Floating Point Numbers

Standard definition of a floating point value in memory.
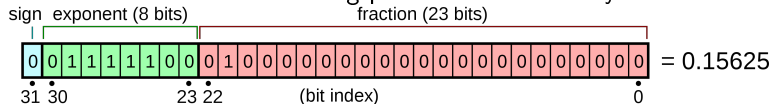
Reference: wikipedia

Integers vs. Floating Point Numbers

Integer

Floating Point

Integers vs. Floating Point Numbers

Integer

Floating Point

Pros:

Pros:

Cons:

Cons:

Analog to Digital Conversion

some reference

Analog to Digital Conversion